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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/628,214

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Steven B. Lonnes

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EXAMINER

BOMAR, THOMAS S

ART UNIT

PAPER NUMBER

3672

DATE MAILED: 02/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/628,214

Applicant(s)

LONNES ET AL.

Examiner

Shane Bomar

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 November 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 4-10, 13, 14, 17, 19-23, and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by US patent 6,388,577 to Carstensen.

Regarding claims 1, 17, and 19, Carstensen discloses a system of two or more valves wherein said valves operate over a designated pressure interval and are arranged to actuate performance of a sequenced set of events by one or more downhole tools with the application of pressure to said valves (see Figs. 1-4 and 9, col. 5, line 42 through col. 6, line 65, and col. 11, lines 25-35), and an associated apparatus comprising a combination of two or more valves arranged as sub-assemblies wherein one sub-assembly communicates with another sub-assembly through pressure isolating connections (see col. 5, line 47 through col. 6, line 16, and col. 11, lines 25-35).

Regarding claim 4, one or more of the valves is inherently annular based.

Regarding claim 5, the set of events is selected from the currently claimed group of events (see col. 4, lines 12-35).

Regarding claim 6, said valves operate one or more remote electrical devices that communicate with a command base via a wireline (see col. 6, lines 31-33, and col. 7, line 53 through col. 8, line 14).

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Regarding claim 7, said valves operate one or more remote electrical devices that are powered at a remote location without requiring wireline support (see col. 3, lines 47-62).

Regarding claims 8-10 and 21-23, at least one of valves 23, 25, 110, or 112 is inherently adaptable to: allow fluid to flow therethrough in only one direction, to cause fluid flow therethrough to cease when said fluid flow reaches a predefined rate or imposes a predefined pressure upon said valve, or to allow fluid flow therethrough when said fluid flow imposes a predefined pressure upon said valve.

Regarding claims 13, 14, and 26, one or more orifices are adapted to limit flow of fluid through one or more of said valves to a predefined flowrate (see col. 5, lines 51-57 and col. 6, lines 41-44).

Regarding claim 20, wireline communication is provided through said sub-assemblies (see Figs. 3-4).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out

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the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 2, 3, 12, 18, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carstensen in view of US patent 6,450,263 to Schwendemann.

Carstensen teaches the system and apparatus of two or more valves that operate over a designated pressure interval as applied to claims 1 and 17 above. It is not expressly taught that one or more of the valves is a cartridge valve, a single purpose cartridge valve, or that a burst disk is present to allow fluid flow out of one or more of the downhole tools.

Schwendemann teaches a valve that operates over a designated pressure interval similar to that of Carstensen. It is further taught that the valve is a single purpose cartridge type valve with a burst disk that can be adapted to allow fluid flow out of one or more of the downhole tools (see Fig. 5 and col. 1, lines 32-65). It would have been obvious to one of ordinary skill in the art, having the teachings of Carstensen and Schwendemann before him at the time the invention was made, to modify the system of valves taught by Carstensen to include the single purpose cartridge type valve of Schwendemann. One would have been motivated to make such a combination since Schwendemann has shown it to be notoriously known in the downhole well tool art to use these types of valves to perform actions at predetermined well pressures.

6. Claims 2, 3, 11, 12, 18, 24, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carstensen in view of US patent 4,865,127 to Koster.

Carstensen teaches the system and apparatus of two or more valves that operate over a designated pressure interval as applied to claims 1 and 17 above. It is not expressly taught that

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one or more of the valves is a cartridge valve, a single purpose cartridge valve, or that a burst disk is present to allow fluid flow out of one or more of the downhole tools, or that at least one screen is adapted to filter solids having predefined dimensions from fluids before the fluids flow through one or more of the valves.

Koster teaches downhole valves that operate over a designated pressure similar to that of Carstensen. It is further taught that the valve is a single purpose cartridge type valve 55 with a burst disk that can be adapted to allow fluid flow out of one or more of the downhole tools, and that at least one screen is adapted to filter solids having predefined dimensions from fluids before the fluids flow through one or more of the valves (see Figs. 4 and 5, and col. 4, lines 19-40). It would have been obvious to one of ordinary skill in the art, having the teachings of Carstensen and Koster before him at the time the invention was made, to modify the valve system taught by Carstensen to include the single purpose cartridge type valve and filter screen of Koster, in order to obtain a system for deflating a packer after its intended use. One would have been motivated to make such a combination since Koster has shown it to be notoriously known in the art to use single purpose cartridge type valves and filter screens downhole for this purpose.

7. Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over US patent 5,704,426 to Rytlewski et al in view of Carstensen.

Regarding claim 15, Rytlewski et al teach a method for perforating and treating multiple intervals of one or more subterranean formations intersected by a wellbore, said method comprising the steps of: (a) deploying a bottom-hole assembly ("BHA") from a tubing string within said wellbore, said BHA having a perforating device 152, 154, or 156, and a sealing mechanism 158; (b) using said perforating device to perforate at least one interval of said one or

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more subterranean formations; (c) positioning said BHA within said wellbore and activating said sealing mechanism so as to establish a hydraulic seal below said at least one perforated interval; (d) pumping a treating fluid down the annulus between said tubing string and said wellbore and into the perforations created by said perforating device (see col. 1, lines 6-16), without removing said perforating device from said wellbore; (e) releasing said sealing mechanism; and (f) repeating steps (b) through (e) for at least one additional interval of said one or more subterranean formations (see Figs. 14a-14d and col. 11, line 34 through col. 12, line 25). It is not expressly taught that at least one of said steps is actuated by a system of valves that operates over a designated pressure interval and is arranged to actuate performance of said step with the application of pressure to said valves.

Carstensen broadly teach a valve system that can be used with most any type of pressure actuated downhole tool, including a perforating tool and sealing mechanism (see Fig. 2 and col. 7, line 56 through col. 8, line 9). It is further taught that the system of valves operates over a designated pressure interval and is arranged to actuate performance of said step with the application of pressure to said valves (see col. 5, line 42 through col. 6, line 65, and col. 11, lines 25-35). It would have been obvious to one of ordinary skill in the art, having the teachings of Rytlewski et al and Carstensen before him at the time the invention was made, to modify the method taught by Rytlewski et al to include the valve system of Carstensen, in order to obtain a valve system that substantially reduces the number of control lines extending to the earth's surface, as taught by Rytlewski et al in column 11, lines 64-66. One would have been motivated to make such a combination because Rytlewski et al have shown it to be economical and convenient to employ this system downhole for any type of pressure operated tool, wherein it is

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well known that economics and convenience are important factors for the selection of downhole actuation systems (see col. 1, lines 56-67), and because Carstensen has shown it to be notoriously known in the art to operate a perforating device with valves of this type.

Regarding claim 16, the combination applied to claim 15 above teaches that additional steps are performed including establishing electrical communication through said sealing mechanism (see Fig. 2 and col. 7, line 56 through col. 8, line 9 of Carstensen).

Response to Arguments

8. Applicant's arguments filed November 9, 2005 have been fully considered but they are not persuasive. The Applicant's arguments first state that a sequence is initiated by a "single application of pressure" without the need of a human operator, wherein there is a remote intervention logic valve acting as a "downhole brain". The Applicant then argues that a valve of Carstensen could be remotely commended, but not as a part of a "pressure driven downhole computer". These arguments are more limiting than the claims themselves because none of these limitations are present in the currently pending claims.

It is also argued that if Carstensen could be read in such a way that the system of valves acted as the "downhole brain", there is no explanation given of how to accomplish it. I respectfully assert that the currently pending claims are also silent as to how to accomplish this, especially since the system of valves is not claimed in combination with, or to act as, a "pressure driven downhole computer" or a "downhole brain".

Yet, in regards to the point of a human operator, Carstensen explicitly states that specific and precise timing of the pressure pulse is needed and that a portable computer can be used to

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initiate those pulses (see col. 6, lines 23-39). It is also stated that the duration of pulses can be on the order of milliseconds (see col. 10, lines 27-35), which would appear to be impossible for a human to achieve alone.

Carstensen is still viewed as anticipating a system of two or more valves to actuate performance of a sequenced set of events by a downhole tool. As an example, crown valve 110 and jumper valve 112 receive an application of pressure, and then direct that pressure downhole to a tool 116, such as a sleeve valve. When the sleeve receives the pressure impulse, it is assumed that the sleeve either opens or closes, which is a first event. If the sleeve opens, then flow is most likely allowed to enter downhole tubular, which is a second event that occurs sequentially after the first event. This fluid is then produced to the surface in a third event. This sequence of events could not occur without the three valves responding in sequence to a pressure impulse sent by the air gun 102 (see col. 11, lines 25-35). A further example is seen in column 12, lines 3-49, wherein an event such as dewatering, cannot occur until a check valve is remotely controlled by a pressure impulse from the surface. It is also of note that Carstensen teaches that his invention can accomplish rapid sequencing control for OMNI valves, which is of particular relevance to the currently claimed invention.

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

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MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shane Bomar whose telephone number is 571-272-7026. The examiner can normally be reached on Monday - Thursday from 6:30am to 4:00pm. The examiner can also be reached on alternate Fridays.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Bagnell can be reached on 571-272-6999. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

tsb

February 3, 2006

~~David J. Bagnell~~
~~Supervisory Patent Examiner~~
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